COMPETITION POLICY INTERNATIONAL

CPI Antitrust Chronicle
Aug 2014 (1)

Identifying Benchmarks for Applying Non-Discrimination in FRAND

Dennis W. Carlton
Booth School of Business of the Univ. of Chicago, NBER, & Compass Lexecon

&

Allan L. Shampine
Compass Lexecon

Identifying Benchmarks for Applying Non-Discrimination in FRAND

Dennis W. Carlton & Allan L. Shampine [1]

I. INTRODUCTION

Standard setting organizations ("SSOs") have for many years asked members to commit to license patents essential to use of standards on Fair, Reasonable and Non-discriminatory ("FRAND") terms.[2] Because SSOs have not defined explicitly what FRAND means, courts and regulators have been forced to interpret it. We have previously written on how standard setting that incorporates patents can lead to complicated situations in which the patent owner, sometimes in collaboration with rival firms, can exploit the market power that is created by being designated a standard essential patent ("SEP"). We have also shown how the non-discriminatory prong of FRAND can be interpreted so as to mitigate the inefficiencies that can result when patent owners try to exploit their market power conferred by the standard-setting process.[3]

Here, we discuss the availability of appropriate benchmarks for implementing the non-discriminatory provision. While any benchmark provided by a license to a "similarly situated" firm can be used to prevent competitors from being disadvantaged relative to one another, it is preferable to use benchmarks that do not include "hold-up" where a patent holder charges an excessively high royalty.[4] The general theoretical concern with hold-up in the context of standard setting is that, while a firm may have alternatives to using a patented technology prior to a standard being set, once a patented technology is included in the standard the firm may no longer find those previous alternatives to be commercially feasible. The patent holder may be able to exploit the elimination of those alternatives and "hold up" the firm. That is, hold-up can potentially occur when the standard-setting process eliminates competing alternatives, thus creating or enhancing the market power of a patent holder.

---

[1] Dennis W. Carlton is the David McDaniel Keller Professor of Economics at the Booth School of Business of the University of Chicago, research associate NBER, and affiliated with Compass Lexecon. Email: dennis.carlton@chicagobooth.edu. Allan L. Shampine is Executive Vice President at Compass Lexecon. Email: ashampine@compasslexecon.com. The authors would like to thank Roger Brooks, Richard Gilbert, and Timothy Simcoe for helpful comments. The authors have consulted on several matters involving FRAND, including for Qualcomm, Apple, and HTC. Funding for this paper was provided in part by Qualcomm.

[2] *See* FTC, *The Evolving IP Marketplace: Aligning Patent Notice and Remedies with Competition,* March 2011 (hereinafter *FTC Report*), p. 192. We are not aware of any difference between Reasonable and Non-Discriminatory ("RAND") and Fair, Reasonable and Non-Discriminatory ("FRAND"). To avoid confusion, we will use the term FRAND throughout this paper.

[3] Dennis W. Carlton & Allan L. Shampine, *An Economic Interpretation of FRAND*, 9 J. COMPETITION L. & ECON. 531 (2013).

[4] We provide a more detailed discussion of hold-up and the definition of "similarly situated" in Carlton & Shampine 2013, *id*.

This enhancement of market power may also occur when a licensee makes sunk investments specific to the standardized technology before it negotiates a license, thus worsening its bargaining position. To use a simple two-party example: Suppose that a Manufacturer could build a factory using one of two equally good technologies (A or B). In either case, building the factory costs $11 million. It chooses technology A without knowing that it will need a patent license from Patent Holder. Patent Holder then comes along and says, "Now that you've built that factory, you must either pay me a royalty of $10 million or build a new factory that doesn't use my technology."[5] The Manufacturer thinks, "I wish I had known that before I built the factory, because then I would have used technology B, which is available to me for less. But rather than have to build a new factory that would cost $11 million, I will agree to pay the $10 million royalty for a license to A." This is an example of hold-up.[6]

There are three categories of license that are likely to provide benchmarks that are substantially protected against hold-up. First, when a licensee has a legally enforceable right to "reasonable" terms, then license negotiations occur with the recognition that the licensee has the option to challenge the offered terms in court rather than signing the offered license, if it does not believe those terms to be reasonable. The terms in licenses negotiated in such circumstances may be expected to be "reasonable" within the meaning of the patent holders' contractual FRAND obligations and any similar competition law requirements, determined by the cost of litigating to enforce those obligations.

Second, if (i) a patent holder announces non-discriminatory license terms for its patents prior to the adoption of a standard and therefore prior to anyone having sunk investments relying on the standard, and (ii) the SSO then includes those patents in the standard, that is evidence that the SSO regards the terms as reasonable given the value created by the patented invention. The terms do not reflect hold-up from market power created by the inclusion of a patented technology in a relevant standard or from exploitation of sunk costs made in reliance on the standard.

Third, license terms are also protected against hold-up if there are actual negotiated rates with prominent and sophisticated firms prior to the standard being set. We discuss each of these categories below.

II. NEGOTIATIONS IN THE PRESENCE OF THE LAW

When patent licenses are negotiated where there are legally enforceable "reasonableness" requirements (whether contractual or statutory), the terms of those agreements may generally be expected to be "reasonable" within the legal meaning of those requirements, as long as litigation costs are low relative to the total royalties. We explain further below.

Firms often make contractual commitments to SSOs to license patents essential to standards of those SSOs on FRAND terms.[7] These commitments are public, and we understand

[5] The investment made in building the factory is called a "sunk cost."

[6] As our example illustrates, the potential for "lock in" created by sunk costs is not limited to the standards context. Note also that a patent holder has also sunk costs in R&D and may itself feel exploited, or "held up," under some circumstances.

[7] *See*, for example, Carlton & Shampine 2013, *supra* note 3.

that the contractual FRAND commitment is generally viewed as legally enforceable in any jurisdiction appropriate to a particular dispute. Firms can, and do, sue to enforce such commitments in court, or use such commitments as defenses against patent infringement actions. Table 1 provides examples of cases brought before a variety of courts in which a party sought to enforce a contractual commitment to license on FRAND terms.

Table 1. Examples of FRAND-Related Contract Litigation

AmTran Technology Co., Panasonic, Toshiba, Vizio & ZTE (U.S. International Trade Commission, No. 337-TA-884)
Apple v. Motorola Mobility (Germany, Mannheim Regional Court, No. 7 O 122/11)
Apple v. Samsung (Australian Federal Court, No. NSD315/2013)
Charter Communications et al. v. Rockstar Consortium (U.S. District Court, District of Delaware, No. 14-cv-55)
Ericsson v. D-Link et al. (U.S. District Court, Eastern District of Texas, No. 10-cv-473)
Ericsson v. Samsung (U.S. District Court, Eastern District of Texas, No. 12-cv-894)
Microsoft v. Motorola (U.S. District Court, Western District of Washington, No. 10-cv-1823)
Motorola v. Apple (U.S. District Court, Northern District of Illinois, No. 11-cv-8540; U.S. District Court, Western District of Wisconsin, No. 10-cv-662)
Nokia v. Apple (U.S. District Court, District of Delaware, No. 09-cv-791)
Nokia v. Qualcomm (Delaware Chancery Court, No. 06-509)
Realtek Semiconductor Corp. v. LSI Corp. (U.S. District Court, Northern District of California, No. 12-cv-3451)

Firms may also sue under competition laws of various jurisdictions, or may make complaints seeking to persuade antitrust regulators to start enforcement actions, if the licensee believes that the proposed license terms violate the antitrust regime in a particular jurisdiction. In some jurisdictions, including the United States, antitrust law rarely reaches unilateral pricing by itself. In other jurisdictions, the standards relevant to competition laws may differ from the "reasonableness" standard arising from a contractual FRAND commitment. Nonetheless, suits or investigations based on allegations of unreasonable terms for SEP licenses in violation of antitrust law have occurred in multiple jurisdictions. Some examples are listed in Table 2 below:

Table 2. Examples of Antitrust Litigation and Investigations Related to Allegations of Unreasonable Terms

Broadcom, Texas Instruments, Nextreaming & Thin Multimedia v. Qualcomm (Korean Fair Trade Commission, No. K06673-0601)
Icera v. Qualcomm (European Commission, Nos. COMP/C-3/39.247-252, COMP/C-1/39.711)
Merger investigation - Google & Motorola (U.S. Department of Justice)
Merger investigation - Bosch & SPX (U.S. Federal Trade Commission, No. 121 0081)
Nokia, Ericsson, Broadcom, Texas Instruments, Panasonic & NEC v. Qualcomm (European Commission)
Preliminary Statement of Objections v. Motorola Mobility (European Commission)
Statement of Objections v. Samsung (European Commission, No. COMP/C-3/39.939)

While the examples above show that firms can, and do, take advantage of the legal protections available to them, the *ability* to go to court impacts negotiations even where litigation does not actually occur. This is because a potential licensee, faced with an unreasonable offer, can choose to decline the offer and go to court to seek better terms. The litigation option is always in the background. Sophisticated firms will thus examine the factors that would be considered in litigation, estimate the likely outcome of litigation, and take those considerations into account in negotiations.

For example, firms will examine the factors that courts are likely to look at when evaluating the FRAND commitment with the goal of estimating what a court is likely to conclude are "reasonable" terms. Those factors will then enter into the negotiations. Factors that a potential licensee is likely to consider in deciding whether to accept offered terms or go to court include the following:

- The possibility that patents might be invalid or not infringed.[8]
- The economic "value" of the patents as likely to be evaluated by the court, which could include, for example, the degree to which the patented feature is the basis for customer demand.[9]
- The royalty base likely to be used by a court, and the interaction between that royalty base and the royalty rate.
- The value of any cross-license demanded by the licensor, including its relative value compared to the primary license.
- The scope of the license, including the number and type of patents included.
- Any discrepancies between the terms offered and terms given to other market participants, as potentially indicating that the offered terms are "unreasonable" or "discriminatory."
- The necessity (if any) to obtain licenses from other parties that also hold patents essential to the same standard(s), potentially leading to concerns about high cumulative royalties ("royalty stacking").[10]
- The value of non-monetary terms, including joint research projects, business cooperation, and technical assistance agreements. Such non-monetary terms can be quite complex.

A licensee negotiating royalties where he is protected by a legally enforceable FRAND commitment is in a better position than is a licensee without such protection. In particular, if a patent holder insists on a rate or other terms that a court is likely to find to be unreasonable (or, more generally, terms that a court is not likely to find reasonable), then the licensee has the option and a strong incentive to go to court rather than accept any such terms (and, as noted

[8] Noninfringement is a possibility even for patents that have been declared as potentially essential to a standard, as there can be uncertainty or disagreement about whether a patent is, in fact, essential to a standard.

[9] *See*, for example, Lucent Techs., Inc. v. Gateway, Inc. 580 F.3d 1301, 1336-37 (Fed. Cir. 2009).

[10] We describe why licensees may care about royalty stacking in Carlton & Shampine 2013, *supra* note 3, at 542.

earlier, firms can and do exercise this option).[11] If a court ruling is obtained, that of course reveals what that court believes to be "reasonable" under the FRAND contract, in light of whatever evidence the parties may submit. On the other hand, if a license is negotiated without litigation (or through settlement of litigation before a ruling is obtained), this indicates the licensee expects that the agreed-upon terms are in the range that a court would likely find reasonable.

If litigation costs were very large relative to the value of the terms being negotiated (i.e., if the costs of litigation were large relative to the potential benefits), then going to court would be an unattractive option, and thus would provide less protection against hold-up.[12] However, if the cost of litigation is small relative to the overall value to be paid under the license, this is likely not a significant concern. Even if some potential benchmark licenses appear less useful because the licensees' litigation costs are likely high relative to the value to be paid, so long as there are some where the litigation costs are relatively low, then there will still be benchmarks allowing the non-discrimination provision in FRAND to work effectively. Indeed, a single benchmark free of hold-up can be sufficient.

Licensors and licensees sometimes negotiate "whole portfolio" licenses that include both SEPs and non-SEPs. In such a case the non-SEPs are not covered by contractual FRAND commitments. One may ask whether such "whole portfolio" licenses are still subject to the protection provided by a legally enforceable FRAND commitment described above. The answer is that if the licensee has the option of demanding a SEP-only license then the licensee still benefits from protection provided by the enforceable FRAND commitment. Specifically, if the licensee believes that the offered terms represented hold-up, and were being demanded based on the essential nature of the SEPs within the portfolio, it could demand an SEP-only license.[13] Then, the licensee could challenge the offered SEP-only terms in court if it believed those terms to be "unreasonable" in violation of the FRAND commitment.

This option provides a constraint on the negotiations even if the licensee does not choose to exercise the "divide and challenge" option. That is, "whole portfolio" licenses are also negotiated with the protection of the court available. However, such licenses are most useful as benchmarks in negotiations for other "whole portfolio" licenses, as it is not necessary then to attempt to unbundle the terms of the license between the SEP and non-SEP portions of the portfolio.

III. PREANNOUNCEMENTS

Even when there is no FRAND commitment by the patent holder, firms are protected against hold-up if a benchmark is used that is created by a preannouncement of non-

[11] This is not to say that the existence of the commitment will itself mean that negotiations will never violate that commitment. The fact that litigation occurs, as noted earlier, is evidence that patent holders are sometimes viewed by licensees as attempting to violate their FRAND commitments. It may also be a sign that the law is not clear, leading to different assessments among the parties of what a court is likely to find to be reasonable.

[12] Litigation costs can potentially deter some suits even when it is in the interest of industry members as a whole to have them resolved. As with all litigation, there may thus be an externality from a precedent-setting case.

[13] The licensee could choose either not to use the non-SEPs or could negotiate separately for them. In such a separate negotiation, the patent holder could not hold up the licensee based on the standard essential nature of part of the portfolio.

discriminatory terms that the relevant SSO believes will be available after the standard is set.[14] Returning to our example of hold-up, if Patent Holder had told Manufacturer up front that the royalty would be $10 million, then Manufacturer would choose which type of factory to build in light of the royalty. We assumed earlier that the two technologies were equally good, but if technology A were, in fact, more valuable than technology B, then Manufacturer would compare that value to the royalty, and would only use technology A if the patented technology was worth at least that much to Manufacturer relative to using technology B. Manufacturer cannot be held up in this situation so long as the announced terms are adhered to.

In the standard-setting context, when a patent holder announces the non-discriminatory terms that it will offer if its patent is included in the standard, then the fact that an SSO adopts those patents into the standard in full knowledge of the terms is evidence that the decision-making SSO members regard those terms as reasonable—not exercising hold-up. It is important in this respect that the terms announced be non-discriminatory; it is not sufficient that they just be preannounced. This is because there is a possibility of strategic action through which a group within an SSO sets rates that disadvantage other members or future entrants.

For example, a patent holder could announce prior to the standard being set that it would charge existing members of the SSO low rates, but would charge any future entrants very high rates. Such terms might well be accepted by the SSO members, but would still subject future firms to hold-up. This situation can be avoided by making the terms generally available and non-discriminatory.[15] Thus, knowledge of the non-discriminatory terms up front can provide protection against hold-up.

IV. LICENSES NEGOTIATED PRIOR TO A STANDARD BEING SET

An equivalent situation would result if, instead of preannouncement of terms to all firms, the patent owner prenegotiated terms with only some firms (i.e., negotiated some licenses prior to the standard being set), and these terms were then announced in a way believed by the SSO to be credible as to its intention to offer non-discriminatory terms to all firms.[16] Or, equivalently, the patent owner prenegotiated terms with firms that were able to influence the standard-setting process so that an alternative technology would be chosen if the patent holder tried to hold them up with unreasonable prenegotiated terms, whether or not those terms were announced at the time.[17] Again, as long as firms that can influence the standard can determine, prior to the standard being set, the terms that would be offered if the patent were to be adopted into the standard, then there can be no hold-up.

---

[14] By preannouncement, we mean prior to a standard being set, costs being sunk, and alternatives being eliminated.

[15] We discuss this issue in more detail in Carlton & Shampine 2013, *supra* note 3, at 546-547 and, in particular, how the term "non-discriminatory" should be interpreted. *See also* Richard J. Gilbert, *Deal or No Deal? Licensing Negotiations in Standard-Setting Organizations*, 77 ANTITRUST L.J. 855 (2011).

[16] Preannounced terms can provide a hold-up free benchmark if the SSO adopts the technology with the expectation that those terms would remain available after the standard is set. Such an expectation may be present if the preannouncement is made in a legally binding way (for example, pursuant to a FRAND commitment), but may also be present in other circumstances where the preannouncement is viewed as credible by the SSO members, e.g., the patent holder may have a reputation for abiding by such statements.

[17] Of course, to be an effective benchmark, the terms must be known at some point.

One might assume that any negotiation occurring prior to the standard being set would result in license terms free of hold-up. However, that is not necessarily the case. The key element here is that the firms negotiating prior to the standard being set are able to fully enjoy competition between alternatives. A firm that could not influence the standard-setting process would be unable to take advantage of such competition and its license terms would thus not provide a useful benchmark. However, even small firms may be able to plausibly influence the standard-setting process. If, for example, a patent holder attempted to charge a small firm a very high licensee fee, the small firm could inform other members of the SSO who might then take that behavior into account.

Similarly, one might assume that any negotiation occurring after the standard being set might be subject to hold-up. Again, that is not necessarily the case. For example, new entrants enjoy at least some protection as they cannot be held up over sunk costs that they have not yet incurred, although they could still be subject to having fewer alternatives available than prior to the standard being set. Such negotiations with new entrants can therefore provide some information about useful benchmarks, but terms negotiated by prominent firms prior to the standard being set are preferable. There may also be situations where hold-up is unlikely or limited because the standard itself has close substitutes.[18]

V. COMPLICATIONS

Even once benchmark licenses free of hold-up have been identified, there may still be practical difficulties to the extent that the scope of the licenses differs. For example, we may observe a set of licenses each covering multiple standards, but where the specific standards vary between licenses, or where both standard essential and non-standard essential patents are included. For the latter, these still may serve as useful benchmarks because the "shadow of the law" protection still applies so long as the licensee has the option to unbundle (e.g., could sue to obtain a license strictly for the FRAND-covered IP), and, particularly outside of litigation, where potential licensees may prefer to obtain broad licenses and so be interested in benchmarks for such licenses.

It may also be possible to implicitly unbundle broad licenses when there are multiple licenses made up of different components. For example, if the licenses are covering standards A, B, and C, and we observe licenses for A/B, B/C, and A/C, then we can determine the implicit terms for each standard separately (assuming that those terms do not vary significantly across customers).

Similar problems can arise when possible benchmark licenses are exclusively cross licenses. Again, it may be possible to implicitly unbundle the elements by comparing overlapping licenses. To take a simple example, assume that Firms A, B, and C each have cross-licenses with one another, and each cross-license involves a single lump sum payment. We would like to know the value of each portfolio. The payment, however, gives us only the net value.[19] So if A is paying

[18] Even in these situations, the possibility of royalty stacking may make it difficult to use a license as a benchmark if, for example, there are multiple patent holders, but the potential benchmark license is for a single patent holder who has extracted most or all of the available rents.

[19] The payment itself may vary between fixed fees and running royalties. Comparing the two may be done by, for example, estimating the expected sales volumes at the time of the negotiation.

B, we observe only the degree to which the value of A's portfolio exceeds B's. But with cross-licenses between A/B, B/C, and A/C, we have three equations in three unknowns, and can solve for the values of A, B, and C. Thus, if those values were $100, $75, and $50, respectively, we would observe cross licenses with payments of $25 from B to A (because A – B = $25), $25 from C to B (because B – C = $25), and $50 from C to A (because A – C = $50). Obtaining the actual values is then a matter of simple substitution.

The process may also be more complicated when the terms contain running royalties, other forms of consideration, or the value varies depending upon the partner (i.e., B and C may not be similarly situated). In principle, however, the same process can be applied based on the firms' expectations as to what sales would be, with any appropriate adjustments for risk, though such adjustments may be complicated.

VI. CONCLUSION

This paper has shown how even when royalty rates for patents are not set in advance, FRAND terms can protect members of an SSO and that this protection can be implemented by using various benchmarks.